

WHAT IS CLAIMED IS:

1. A connecting member for securing spinal rods mounted to spinal vertebrae, the connecting member comprising:
 - a central span; and
 - a pair of connecting ends, each end including:
 - a contact for seating the connecting member on a spinal rod;
 - a locking member for locking the spinal rod against the contact such that the locking member and contact form a spinal rod seat with locked and unlocked positions; and
 - a cam member connected to the locking member and rotatable against a cam surface of the connecting end for moving the locking member between the unlocked and locked positions and to secure the locking member against the spinal rod.
2. The connecting member of claim 1 wherein the contact for seating the connecting end on the spinal rod is an arcuate surface.
3. The connecting member of claim 1 wherein the locking member has an arcuate face such that the arcuate face is secured against the spinal rod when in the locked position.
4. The connecting member of claim 1 wherein the connecting end further includes a spring retention member for biasing the locking member in the unlocked position.
5. The connecting member of claim 4 wherein the spring retention member is compressed when the locking member is moved to a locked position.

6. The connecting member of claim 5 wherein the spring retention member is a split ring located around the cam member, and the ring is compressed when the locking member is moved to a locked position.

7. The connecting member of claim 1 wherein the camming member is located in a bore in the connecting end, and the bore includes a pair of arcuate camming surfaces for camming against the cam member.

8. The connecting member of claim 1 wherein the cam member has a recess, and the locking member is secured in the recess of the cam member such that the cam member and locking member may rotate relative to each other.

9. The connecting member of claim 8 wherein the recess is an annular channel.

10. A connecting member for securing spinal rods mounted to spinal vertebrae, the connecting member comprising:

a pair of connecting ends each having an arcuate surface and a locking member for seating the connecting member on a pair of spinal rods; and

a central span including:

a cross rod having a central longitudinal axis and being connected to one connecting end;

a rod receiving member having a central longitudinal axis and being connected to the other connecting end, the rod receiving member including an internal cavity for receiving the cross rod;

a clamp device for clamping against the cross rod received in the rod receiving member; and

a sleeve for clamping the clamp device against the cross rod upon rotation of the sleeve around the central longitudinal axis of the rod receiving member.

11. The connecting member of claim 10 wherein the internal cavity of the rod receiving member receives the cross rod such that the cross rod may be adjustably inserted in the cavity for varying the length of the connecting member, the cross rod may be adjustably rotated in the rod receiving member around a longitudinal axis of the cross rod, and the cross rod may be pivoted relative to the rod receiving member.

12. The connecting member of claim 11 wherein the clamp device may pivot to permit pivoting of the cross rod.

13. The connecting member of claim 12 wherein the clamp device includes an inner surface for mating with the external surface of the cross rod.

14. The connecting member of claim 13 wherein with at least a portion of the inner surface of the clamp device is arcuate for mating with the external surface of the cross rod, and the cross rod may be rotatably adjusted relative to the clamp device.

15. The connecting member of claim 10 wherein the cross rod includes a protrusion for retaining the crossrod within the rod receiving member.

16. The connecting member of claim 10 wherein the sleeve includes an internal structure that imparts a compression force on the clamp device for securing the cross rod.

17. The connecting member of claim 16 wherein the rod receiving member includes a terminal surface for limiting the position of the clamp device.

18. The connecting member of claim 17 wherein the clamp device is compressed between the terminal surface of the rod receiving member and the internal structure of the sleeve to secure the cross rod.

19. The connecting member of claim 17 wherein the internal structure of the sleeve contacts the clamp device directly.

20. The connecting member of claim 17 wherein the internal structure of the sleeve that contacts the clamp device includes a shoulder portion.

21. The connecting member of claim 17 wherein the rod receiving member includes a pair of flanges extending about at least a portion of the clamp device, and the internal structure of the sleeve contacts and compresses the flanges to compress the clamp device for securing the cross rod.

22. The connecting member of claim 21 wherein at least one flange and the clamp device are joined by a post and receptacle, the receptacle receiving and holding the post, and the post and receptacle providing a pivot axis for the clamp device so the clamp device and cross rod may pivot within the rod receiving member.

23. The connecting member of claim 22 wherein each flange includes a terminal surface mating with the internal surface of the sleeve to compress the clamp device.

24. A connecting member for securing spinal rods mounted to spinal vertebrae, the connecting member comprising:

a pair of connecting ends each having an arcuate surface and a locking member for seating the connecting member on a pair of spinal rods; and

a central span including:

a cross rod being connected to one connecting end;

a rod receiving member being connected to the other connecting end, the rod receiving member including an internal cavity for receiving the cross rod;

a clamp device for clamping against the cross rod when received in the rod receiving member;

a sleeve for clamping the clamp device against the cross rod; and

side openings, wherein the cross rod has lateral surfaces which may be pivoted relative to the rod receiving member towards and away from the side openings.

25. The connecting member of claim 24 wherein the cross rod has a central longitudinal axis, and the rod receiving member has a central longitudinal axis.

26. The connecting member of claim 24 wherein the cross rod may be pivoted to a position such that the cross rod is protruding from one of the side openings.

27. The connecting member of claim 25 wherein the lateral surfaces of the cross rod are beveled towards the central longitudinal axis of the cross rod at an end of the cross rod.